

## CLAIMS

1. A plasma display device including a plasma display panel in which a plurality of discharge cells are arranged, and a phosphor layer in  
5 color corresponding to each discharge cell is disposed, and the phosphor layer emits light by being excited by ultraviolet light, wherein the phosphor layer has a green phosphor layer including  $\text{Zn}_2\text{SiO}_4\cdot\text{Mn}$ ; and the green phosphor made of  $\text{Zn}_2\text{SiO}_4\cdot\text{Mn}$  has an element ratio of zinc (Zn) to silicon (Si) of 2/1, which is a stoichiometric  
10 ratio at a proximity of a surface thereof.

2. A plasma display device including a plasma display panel in which a plurality of discharge cells are arranged, a phosphor layer in a color corresponding to each discharge cell is disposed, and the phosphor  
15 layer emits light by being excited by ultraviolet light, wherein the phosphor layer has a green phosphor layer including  $\text{Zn}_2\text{SiO}_4\cdot\text{Mn}$ ; and the green phosphor made of  $\text{Zn}_2\text{SiO}_4\cdot\text{Mn}$  has an element ratio of zinc (Zn) to silicon (Si) equal to a stoichiometric ratio at a proximity of a surface thereof, and is positively charged or zero-charged.

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3. A method of producing a phosphor for a plasma display device, comprising:

a process in which one of metal salt, nitrate salt, and organometallic salt, including elements [Zn, Si, Mn] composing a green  
25 phosphor, are blended so that an element ratio of Zn to Si is to be 2/1, and then the salt and water are mixed to produce mixed liquid;

a pre-firing process in which, after the mixed liquid is dried, the

mixed liquid is fired in an air at 600°C to 900°C, to produce pre-fired matter; and

a firing process in which the pre-fired matter is fired in an atmosphere including at least one of N<sub>2</sub>, N<sub>2</sub>-O<sub>2</sub>, and Ar-O<sub>2</sub>, between  
5 0.105 MPa and 150MPa inclusive, at 1,000°C to 1,350°C.

4. A method of producing a phosphor for a plasma display device, comprising:

a process of mixing a raw material for a phosphor, in which a  
10 raw material of oxide and/or carbonate including elements [Zn, Si, Mn] composing a green phosphor, are mixed;

a pre-firing process in which the mixed raw material is fired in an air at 600°C to 900°C, to produce pre-fired matter; and

a firing process in which the pre-fired matter is fired in an  
15 atmosphere including at least one of N<sub>2</sub>, N<sub>2</sub>-O<sub>2</sub>, and Ar-O<sub>2</sub>, between 0.105 MPa and 150MPa inclusive, at 1,000°C to 1,350°C.